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NQR/NMR evidence for unconventional superconductivity and magnetic excitation in the new heavy Fermion compounds Ce(Ir1 - xRhx)In5.

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We report extensive NQR/NMR studies on the newly-discovered heavy fermion superconductors $Ce(Ir_{1-x}Rh_x)In_5$ (x=0, 0.25, 0.5 0.75) from T=160 K down to 90 mK. In $CeIrIn_5$ (Tc=0.4 K), we find that the superconductivity is of unconventional type with line-node gap. We also find that this new compound is located in close proximity to the magnetic ordering and that its normal state is governed by anisotropic spin fluctuations [1]. Substituting Rh for Ir increases T_c . We will discuss the relationship between the systematic change of the magnetic excitations and the superconductivity. The evidence for co-existence of magnetism and superconductivity will be presented, and the pairing symmetry will be argued based up both the T_1 and Knight shift results.

[1] G.-q. Zheng et al, Cond-mat/0102487 v2